

Ephemeris for Physical Observations of Jupiter, 1880-81. By A. Marth, Esq.Mr. Marth, *Ephemeris for*

XL. 7,

Greenw. Noon.	Angle of Position of \mathcal{L} 's Axis.	Latitude of Earth above \mathcal{L} 's Equator.	Sun	Annual Parallax.	Equat. Diam.	Greatest Phase.	Longitude of \mathcal{L} 's Meridian directed to the Earth.	Corr. of Long. Diff.
1880.	°	°	°	°	"	"	°	°
June 18	335°698	+2°616	+2°322	-11°26	37°83	0°364	196°69	4352.68 +0.55
23	335°792	2°655	2°338	11°50	38°38	.385	229°37	.57
28	335°879	2°693	2°353	11°68	38°95	.403	262°11	.59
July 3	335°959	2°730	2°369	11°80	39°55	.418	294°91	.61
8	336°032	2°766	2°384	11°86	40°17	.429	327°78	.61
13	336°096	2°800	2°400	11°84	40°82	.434	0°72	.61
18	336°152	2°832	2°415	11°76	41°48	.435	33°73	.60
23	336°198	2°863	2°430	11°60	42°15	.430	66°81	.59
28	336°232	2°892	2°445	11°36	42°84	.420	99°97	.56
Aug. 2	336°255	2°919	2°460	11°04	43°53	.403	133°19	.53
7	336°265	2°944	2°474	10°64	44°22	.380	166°48	.49
12	336°262	2°966	2°489	10°16	44°90	.352	199°84	.45
17	336°247	2°985	2°503	9°59	45°57	.318	233°27	.40
22	336°219	3°001	2°517	8°94	46°22	.281	266°76	.35
27	336°179	3°014	2°531	8°21	46°83	.240	300°31	.29
Sept. 1	336°129	3°023	2°545	7°41	47°41	.198	333°91	.36
6	336°068	+3°028	+2°559	-6°53	47°93	.155	7°55	.24 +0.19
							4353.68	

Greenw. Noon, 1880.	Angle of Σ 's Axis, Position of Σ 's Axis.	Latitude of Earth above Σ 's Equator.	Sun above Σ 's Equator.	Annual Parallax.	Equat. Diam.	Greatest Phase.	Longitude of Σ 's Meridian directed to the Earth. Diff.		Corr. of Long. °
							o	o	
Sept. 11	335°999	o	+ 3°030	o	- 5°59	48°39	0115	41°23	+ 0°14
16	335°924	3°027	2°586	4°59	48°79	078	74°94	435371	.09
21	335°845	3°020	2°599	3°54	49°10	047	108°66	3°72	.05
26	335°762	3°008	2°612	2°45	49°34	023	142°38	3°72	.03
Oct. 1	335°679	2°993	2°625	1°33	49°48	007	176°09	3°71	.01
6	335°596	2°974	2°637	- 0°21	49°52	000	209°78	3°69	.00
11	335°516	2°951	2°650	+ 0°93	49°47	003	243°44	3°66	.00
16	335°441	2°925	2°662	2°05	49°33	016	277°04	3°60	.02
21	335°371	2°897	2°674	3°15	49°09	037	310°58	3°51	.04
26	335°307	2°866	2°686	4°21	48°77	066	344°05	3°47	.08
31	335°251	2°834	2°698	5°22	48°37	100	17°44	3°39	.12
Nov. 5	335°203	2°802	2°710	6°18	47°89	139	50°74	3°30	.17
10	335°162	2°769	2°721	7°07	47°35	180	83°93	3°19	.22
15	335°129	2°737	2°732	7°88	46°76	221	117°03	3°10	.27
20	335°104	2°705	2°743	8°62	46°12	260	150°02	2°99	.32
25	335°087	2°675	2°754	9°28	45°45	297	182°90	2°88	.37
30	335°077	2°647	2°765	9°85	44°76	330	215°67	2°77	.42
Dec. 5	335°074	+ 2°621	+ 2°776	+ 10°33	44°05	357	248°34	2°67	- 0°46
								4352.57	

Greenw. Noon.	Angle of $\frac{1}{4}^{\circ}$'s Axis.	Latitude of Earth above $\frac{1}{4}^{\circ}$'s Equator.	Annual Parallax.	Longitude of 27°_s		Meridian directed to the Earth.	Corr. of Long. Diff.
				Equat. Diam.	Greatest Phase.		
1880.				"	"	"	"
Dec. 10	335.079	+ 2598	+ 10°72	43.33	0.378	28.091	- 0.50
15	335.092	2577	11.02	42.61	.393	31.338	.53
20	335.112	2559	11.25	41.91	.403	345.75	.55
25	335.139	2544	11.39	41.21	.406	18.04	.56
30	335.175	2532	11.46	40.53	.404	5.24	.57
Jan. 4	335.220	2523	2.836	11.44	39.87	0.396	82.37
9	335.273	2516	2.845	11.36	39.23	.384	114.43
14	335.335	2513	2.854	11.21	38.62	.368	146.42
19	335.406	2512	2.863	10.99	38.04	.349	178.36
24	335.487	2514	2.872	10.71	37.49	.327	210.24
29	335.579	2518	2.880	10.37	36.97	.302	242.08
Feb. 3	335.681	2524	2.889	9.99	36.48	.277	272.88
8	335.795	2533	2.897	9.56	36.02	.250	305.64
13	335.920	2543	2.905	9.08	35.59	.223	337.38
18	336.056	2556	2.913	8.56	35.19	.196	9.09
23	336.204	2570	2.921	8.01	34.83	.170	40.79
28	336.365	+ 2584	+ 2.928	+ 7.42	34.50	0.144	72.47

The "annual parallax" is the difference of the Jovicentric longitudes of the Sun and the Earth, reckoned in the plane of *Jupiter's* equator. If the correction given in the last column is applied to the "longitude of 2°'s meridian directed to the Earth," the longitude of the meridian is found which bisects the illuminated disk. The First (or Zero) Meridian, from which the longitudes are reckoned is that which at the Greenwich midnight preceding January 1, 1872, was apparently directed to the Earth, and which is assumed to rotate at the daily rate of $870^{\circ}60$, the corresponding period of rotation being $9^{\text{h}}\ 55^{\text{m}}\ 27^{\text{s}}08$. If suitable observations for ascertaining the true rate of rotation for different spots have been made during the apparitions of *Jupiter* from 1872 to 1878, for which Ephemerides were published, they have not yet come to my knowledge. The numerous observations of passages across the central meridian which have been made during the last season appear to have been confined to those of the red spot in the planet's southern hemisphere. Though their proper discussion must be deferred till the end of this exceptional appearance, and till all the accounts are available, a preliminary examination of the results will not be uninstructive, and I give, therefore, a list of the observed passages which have hitherto come to my knowledge, together with the corresponding longitudes of the meridian which bisected the illuminated disk, as derived from the Ephemeris, and also with the longitudes corrected by the quantity $-0^{\circ}17$ ($t - \text{Oct. } 17^{\circ} 1879$). The period of rotation corresponding to the daily rate $870^{\circ}43$ is $9^{\text{h}}\ 55^{\text{m}}\ 34^{\text{s}}1$. A small correction, depending on the Jovicentric latitude of the spot and on the correction in the last column of the Ephemeris, is still required in those cases in which the observed passage does not refer to the meridian which is equidistant from the two limbs (one of which is affected by the phase), but to the line perpendicular upon and bisecting the apparent equatoreal diameter. Except at opposition, this line does not pass through the poles of the planet, and is not a meridian line, and though the difference is small for spots not far from the equator, it may become very sensible for spots in higher latitudes.

The sources from which the list is derived are mentioned *post*, p. 429 : the times are Ath. Athens, Br. Brussels, Gr. Greenwich, Mo. Moscow mean times, as supplied by the observers ; in the cases, however, where seconds are given, tenths of minutes have been substituted for the sake of uniformity.

Mr. Marth, Ephemeris for

XL. 7,

	Observed Passages,										Corresponding Longitudes.										
	Prec.	End.	Middle.	Foll.	End.	h	m	h	m	h	Gr.	Pritchett	Prec.	End.	Rot. 87° 60.	Rot. 87° 43.	Middle.	Foll.	End.		
July 10	—	—	19	1'3	—	"	"	"	"	"	—	243°9	—	—	—	—	260°6	—	—	—	
22	—	—	19	1'3	—	"	"	"	"	"	—	246°2	—	—	—	—	260°9	—	—	—	
26	—	—	12	25°0	—	"	"	"	"	"	Pratt	—	249°4	—	—	—	—	263°4	—	—	—
28	14	18°4	14	38°4	14	48°5	—	Br.	Niesten	248°8	—	260°9	267°1	262°5	274°6	280°7	—	—	—	—	
29	10	4°7	10	19°8	10	34°8	—	Br.	Niesten	246°2	—	255°3	264°4	259°8	268°8	277°	—	—	—	—	
31	11	30°6	11	54°6	12	15°6	—	Br.	Niesten	239°5	—	254°0	266°7	252°7	267°2	279°	—	—	—	—	
Aug. 2	12	5°0	13	27°8	—	"	"	Br.	Niesten	229°0	—	249°4	—	241°8	262°3	279°6	—	—	—	—	
4	—	—	15	8°2	15	29°8	—	Br.	Niesten	267°1	—	—	254°0	—	266°5	279°6	—	—	—	—	
6	—	—	16	25°3	—	"	"	Br.	Niesten	252°7	—	—	252°7	—	264°8	—	—	—	—	—	
7	11	3°0	—	—	"	"	"	Br.	Brewin	224°9	—	—	—	236°8	—	—	—	—	—	—	
7	—	—	22	12°3	—	"	"	Br.	Pritchett	—	253°2	—	—	—	265°2	—	—	—	—	—	
8	—	—	18	2°3	—	"	"	Br.	Pritchett	—	252°8	—	—	—	264°6	—	—	—	—	—	
9	13	38°5	14	0°5	—	"	"	Br.	Niesten	233°5	—	246°8	—	245°1	258°4	—	—	—	—	—	
10	9	39°1	10	8°1	10	31°0	—	Br.	Niesten	239°4	—	256°9	270°8	250°9	268°4	281°5	—	—	—	—	—
12	11	17	11	38	12	1°5	—	Br.	Niesten	240°1	—	252°8	267°0	251°2	263°9	278°1	—	—	—	—	—
15	—	—	18	42°3	—	"	"	Br.	Pritchett	—	252°1	—	—	—	263°7	—	—	—	—	—	
16	—	—	14	34°1	—	"	"	Br.	Pritchett	—	252°8	—	—	—	263°2	—	—	—	—	—	
17	10	28°6	10	43°9	11	7°2	—	Br.	Niesten	244°5	—	253°8	267°8	254°8	264°1	278°1	—	—	—	—	—
18	—	—	16	1°9	—	"	"	Br.	Pritchett	—	253°4	—	—	—	263°5	—	—	—	—	—	
20	—	—	17	48°3	—	"	"	Br.	Pritchett	—	253°2	—	—	—	262°9	—	—	—	—	—	

	Observed Passages,		Foll. End. h m	Middle. h m	Observer.	Prec. End. °	Rot. 37° 60'. °	Middle. °	Foll. End. °	Prec. End. °	Rot. 37° 43'. °	Middle. °	Foll. End. °
	Prec. End. h m	Foll. End. h m											
Aug. 22	—	19 25'3	—	Gr.	Pritchett	—	253.3	—	—	—	262.7	—	—
24	—	21 0'6	—	“	“	—	252.4	—	—	—	261.4	—	—
25	—	16 51'8	—	“	“	—	252.7	—	—	—	261.6	—	—
27	—	18 29'3	—	“	“	—	253.1	—	—	—	261.7	—	—
28	—	14 19'0	—	“	“	—	252.5	—	—	—	260.9	—	—
29	—	10 14'	—	“	Backhouse	—	255.1	—	—	—	263.3	—	—
29	—	20 7'3	—	“	Pritchett	—	253.8	—	—	—	262.0	—	—
30	—	15 58'1	—	“	“	—	253.9	—	—	—	261.9	—	—
31	II 33'6	12 4'4	—	Br.	Niesten	234.1	253.7	—	—	242.0	261.6	—	—
Sept. 1	—	17 33'9	—	Gr.	Pritchett	—	253.3	—	—	—	261.0	—	—
3	9 10'	—	—	Br.	Niesten	239.5	—	—	—	246.6	—	—	—
3	—	9 19'	—	Gr.	Pratt	—	255.5	—	—	—	262.9	—	—
3	—	19 9'8	—	“	Pritchett	—	252.7	—	—	—	260.1	—	—
4	—	15 2'3	—	“	“	—	253.8	—	—	—	261.0	—	—
6	—	16 40'7	—	“	“	—	254.7	—	—	—	261.6	—	—
8	—	8 25	8 55	“	MacCance	—	256.4	274.6	—	—	263.0	281.1	—
8	—	8 15'18	—	“	Pritchett	—	253.7	—	—	—	260.2	—	—
10	—	10'15	—	“	Pratt	—	256.2	—	—	—	262.4	—	—
10	—	19 51'7	—	“	Pritchett	—	253.1	—	—	—	259.2	—	—
11	—	8 25'9	—	Mo.	Bredichin	—	258.2	—	—	—	264.3	—	—

Observed Passages.

	Prec. End. h m	Middle. h m	Foll. End. h m	Observer.	Prec. End. °	Rot. 870°6o. Middle. °	Foll. End. °	Prec. End. °	Rot. 870°43. Middle. °	Foll. End. °	
1876.	Sept. 12	—	11 59.1	—	Br. Niesten	—	258.1	—	—	264.0	—
	13	—	17 22.3	—	Gr. Pritchett	—	254.8	—	—	260.5	—
	14	—	13 13.9	—	” ”	—	255.3	—	—	260.9	—
	15 8 35	—	9 7	—	MacCance	237.4	256.7	—	242.8	262.1	—
	15	—	11 43.7	—	Mo. Bredichin	—	260.6	—	—	266.0	—
	15	—	18 59.7	—	Gr. Pritchett	—	255.1	—	—	260.4	—
	16	—	14 50.9	—	” ”	—	255.4	—	—	260.5	—
	17	—	13 18.6	—	Mo. Bredichin	—	259.4	—	—	264.4	—
	18	—	9 11.3	—	” ”	—	260.5	—	—	265.4	—
	20	—	10 48.2	—	” ”	—	260.5	—	—	265.0	—
	20	—	18 6.3	—	Gr. Pritchett	—	256.2	—	—	260.7	—
	22 9 37.1	—	10 0.7	10 30.1	Br. Niesten	239.1	253.4	271.1	243.3	257.6	275.3
	22	—	12 25.1	—	Mo. Bredichin	—	260.4	—	—	264.6	—
	22 9 29	—	9 33	10 23	Gr. Backhouse	244.8	260.5	277.4	249.0	264.7	281.6
	23	—	8 17.8	—	Mo. Bredichin	—	261.5	—	—	265.6	—
	24	—	11 55	—	Br. Niesten	—	263.8	—	—	267.6	—
	25	—	9 55.7	—	Mo. Bredichin	—	262.1	—	—	265.7	—
	25	—	7 44.5	—	Br. Niesten	—	263.0	—	—	266.7	—
	25	—	17 12.3	—	Gr. Pritchett	—	256.9	—	—	260.5	—
	26	—	13 3.1	—	” ”	—	256.9	—	—	260.4	—

	Observed Passages.			Corresponding Longitudes.			Rot. 87° 60'.			Rot. 87° 43'.			
	Prec. End. h m	Middle. h m	Foll. End. h m	Observer.	Prec. End. °	Middle. °	Foll. End. °	Prec. End. °	Middle. °	Foll. End. °	Prec. End. °	Middle. °	Foll. End. °
1879.													
Sept. 27	8 44.6	9 11.9	9 41.9	Br.	Niesten	240.6	257.2	275.3	244.0	260.5	260.5	278.6	278.6
	27	9 19.8	9 48.3	10 23.3	Berlin Lohse	240.1	257.3	278.5	243.5	260.7	260.7	281.8	281.8
27	—	8 59	—	Gr.	Pratt	—	259.9	—	—	—	263.3	—	—
27	—	II 35.6	—	Mo.	Bredichin	—	263.8	—	—	267.1	—	—	—
27	—	18 51.3	—	Gr.	Pritchett	—	258.1	—	—	261.3	—	—	—
29	—	10 43	—	“	Backhouse	—	264.1	—	—	267.1	—	—	—
30	—	16 19.6	—	“	Pritchett	—	258.3	—	—	261.0	—	—	—
Oct. 1	—	12 15.5	—	“	Pratt	—	261.3	—	—	264.0	—	—	264.0
2	7 59.4	8 19.4	8 44.8	Br.	Niesten	246.6	258.6	274.0	249.1	261.1	261.1	276.5	276.5
2	—	10 43.1	—	Mo.	Bredichin	—	265.2	—	—	267.7	—	—	—
3	—	6 30.9	—	“	“	—	265.4	—	—	265.7	—	—	—
5	—	8 10.8	—	“	“	—	265.0	—	—	267.0	—	—	—
5	—	15 26.1	—	Gr.	Pritchett	—	259.0	—	—	261.0	—	—	—
6	—	II 22.3	—	“	Pratt	—	262.2	—	—	264.0	—	—	—
6	10 59	II 23	—	“	Backhouse	248.2	262.7	—	250.0	264.5	—	—	—
6	II 25.7	II 42	12 3	Br.	Niesten	253.7	263.6	276.3	255.5	265.4	265.4	278.1	278.1
7	7 12.5	7 32.5	7 53.5	“	“	251.3	263.4	273.1	252.9	265.0	265.0	274.7	274.7
7	—	17 43	—	Gr.	Pritchett	—	259.6	—	—	261.2	—	—	—
8	—	12 56.7	—	“	“	—	260.5	—	—	262.0	—	—	—
11	—	5.7	—	Mo.	Bredichin	—	268.0	—	—	269.0	—	—	—

Observed Passages.	Corresponding Longitudes.											
	Rot. 87° 60.			Rot. 87° 43.			Middle.			Foll. End.		
1879.	Prec. End. h m	Middle. h m	Foll. End. h m	Observer.	Gr.	Pritchett	—	259° 9	—	—	260° 7	—
Oct. 12	—	16 10' 2	—	—	—	—	—	259° 8	—	—	260° 4	—
13	—	12 1' 0	—	”	”	—	—	265° 9	—	—	266° 3	—
14	—	10 32' 2	—	Mo.	Bredichin	—	—	—	—	—	262° 0	—
14	—	17 50' 5	—	Gr.	Pritchett	—	—	—	—	—	—	—
15	—	13 41' 1	—	”	”	—	—	261° 5	—	—	261° 8	—
16	9 32' 3	9 51' 3	10 12' 3	Br.	Niesten	251° 1	262° 6	275° 3	251° 2	262° 7	275° 4	—
17	—	8 1' 8	—	Mo.	Bredichin	—	266° 7	—	—	266° 6	—	—
17	—	15 18' 9	—	Gr.	Pritchett	—	261° 8	—	—	261° 7	—	—
18	—	11 11' 7	—	”	”	—	262° 9	—	—	262° 6	—	—
19	—	17 0' 3	—	”	”	—	264° 2	—	—	263° 7	—	—
20	—	5 32' 5	—	Mo.	Bredichin	—	268° 0	—	—	267° 5	—	—
20	—	12 50' 4	—	Gr.	Pritchett	—	263° 7	—	—	263° 7	—	—
22	—	14 29' 4	—	”	”	—	264° 6	—	—	263° 7	—	—
24	—	8 50' 3	—	Mo.	Bredichin	—	269° 9	—	—	268° 6	—	—
24	—	16 7' 4	—	Gr.	Pritchett	—	265° 0	—	—	263° 7	—	—
25	—	11 59' 6	—	”	”	—	265° 7	—	—	264° 3	—	—
26	—	7 50	—	”	Pratt	—	265° 3	—	—	263° 7	—	—
27	—	13 38' 0	—	”	Pritchett	—	266° 2	—	—	264° 4	—	—
28	—	—	9 56	”	Backhouse	—	—	282° 6	—	—	280° 9	—
29	—	15 15' 3	—	”	Pritchett	—	266° 1	1.993	—	264° 0	—	—

Corresponding Longitudes,

Rot. $87^{\circ}60'$.Rot. $87^{\circ}43'$.

	Observed Passages.	Middle. h m	Foll. End. h m	Observer.	Prec. End. °	Middle. °	Foll. End. °	Prec. End. °	Middle. °	Foll. End. °	Prec. End. °	Middle. °	Foll. End. °
1879.													
Oct.	30	—	11 6'3	—	Gr.	Pritchett	—	266.1	—	—	263.8	—	—
Nov.	1	—	5 24'6	—	Mo.	Bredichin	—	269.7	—	—	267.1	—	—
2	—	8 35'3	—	Gr.	Pratt	—	266.4	—	—	263.6	—	—	—
2	—	8 45	—	“	Green	—	272.2	—	—	269.4	—	—	—
3	—	14 20'8	—	“	Pritchett	—	265.7	—	—	262.9	—	—	—
5	—	6 4'3	—	“	Pratt	—	266.6	—	—	263.3	—	—	—
5	—	16 0'7	—	“	Pritchett	—	267.1	—	—	263.7	—	—	—
6	—	11 53'0	—	“	“	—	267.8	—	—	264.4	—	—	—
7	7 13	7 44	8 13	“	Gledhill	249.1	267.8	285.3	245.5	261.2	281.7	—	—
7	7 15	7 47	—	“	Green	250.3	269.0	287.8	240.7	260.0	284.1	—	—
7	—	—	8 17	“	Backhouse	—	—	—	—	—	—	277.0	—
10	6 17.9	6 50.5	7 9.6	Ath.	Schmidt	249.8	266.5	281.1	245.7	265.1	277.0	—	—
10	—	—	5 44	Gr.	Backhouse	—	—	286.7	—	—	282.6	—	—
10	—	15 7'2	—	“	Pritchett	—	267.2	—	—	263.0	—	—	—
12	—	6 45	—	“	Green	—	264.6	—	—	260.1	—	—	—
12	7 17.7	8 24'7	8 47'6	Ath.	Schmidt	226.9	267.4	281.2	222.5	263.0	276.8	—	—
12	6 20	6 50	7 20	Gr.	Gledhill	249.4	267.6	285.7	245.0	263.1	281.2	—	—
12	—	6 50	—	“	Pratt	—	267.6	—	—	263.1	—	—	—
12	—	9 25'8	—	Mo.	Bredichin	—	270.9	—	—	266.4	—	—	—
14	7 59	8 25	9 6	Gr.	Gledhill	250.2	265.9	290.7	245.4	261.1	285.9	—	—

Observed Passages,

Date	Prec. End. h m	Middle. h m	Foll. End. h m	Observer.	Corresponding Longitudes.		
					Rot. 87° 60.	Rot. 87° 43.	Foll. End.
Nov. 15	—	14 13.3	—	Gr. Pritchett	—	267.0	—
17	5 35	—	—	Backhouse	254.6	—	249.3
19	—	7 35	—	Green	—	268.0	—
19	—	7 35.5	—	Pratt	—	268.3	—
22	—	14 58.3	—	“ Pritchett	—	267.3	—
23	—	10 52.3	—	“	—	269.0	—
24	7 52.7	8 23.0	8 50.5	Ath. Schmidt	253.5	271.8	288.5
25	—	5 7.9	—	Mo. Bredichin	—	270.9	—
25	—	12 32.8	—	Gr. Pritchett	—	270.6	—
26	8 18.9	8 43.9	9 8.9	Br. Niesten	257.1	272.2	287.3
28	—	10 5.3	—	Gr. Pritchett	—	272.7	—
29	5 39.3	6 4.3	6 34.3	Br. Niesten	251.8	266.9	285.1
29	5 15	5 50	6 30	Gr. Gledhill	247.7	268.9	293.0
29	—	5 53	6 21	Backhouse	—	270.7	287.6
29	—	15 49.3	—	Pritchett	—	271.1	—
30	—	11 40.3	—	“	—	271.0	—
Dec. 1	7 3	7 35	—	Gledhill	253.9	273.2	—
2	—	3 53.4	—	Br. Niesten	—	279.1	—
3	8 45	9 10	—	Gr. Gledhill	256.3	271.4	248.3
4	—	7 33.2	—	Mo. Bredichin	—	272.5	—

Mr. Marth, Ephemeris for

XL. 7,

Observed Passages.	Corresponding Longitudes.						Rot. $870^{\circ}43.$
	Prec. End. h m	Middle. h m	Foll. End. h m	Observer.	Prec. End. °	Middle. °	
1879.	4 6 9.3	6 50.6	7 0.7	Ath.	255.2	280.2	247.0
Dec.	—	—	6 36	Gr.	—	266.6	—
6	6 28.9	6 54.6	7 23.9	Br.	254.7	270.3	288.0
6	6 14	6 40	7 10	Gr.	256.3	272.0	290.1
6	6 5	6 45	7 15	Backhouse	250.8	275.0	293.1
6	—	6 45	7 15	Gledhill	—	275.0	293.1
6	7 58.9	8 18.8	8 52.3	Ath.	262.3	274.3	294.6
8	8 2.2	8 29.2	8 55.2	Br.	251.9	268.2	283.9
8	7 41	8 21	8 46	Gr.	249.7	273.8	288.9
9	4 2.0	4 22.3	4 56.8	Br.	257.1	269.4	290.2
11	5 22	—	—	Gr.	256.8	270.2	294.1
11	—	15 40.6	—	MacCance	—	247.4	—
12	—	11 33.0	—	Pritchett	—	270.7	—
13	—	7 35	—	“	—	271.5	—
16	4 49.9	5 16.9	5 44.4	Br.	258.8	278.0	—
16	—	14 50.3	—	Niesten	275.1	291.7	248.6
18	6 18.3	6 48.3	7 15.3	Br.	253.0	272.3	287.5
20	—	8 30	—	Niesten	271.1	287.5	242.4
22	—	9 52.6	—	“	—	273.4	—
23	5 38.4	6 2.9	6 32.9	Gr.	Pritchett	274.6	—
23	5 18	5 48	6 15	Br.	Niesten	260.8	275.6
				Gr.	Backhouse	259.0	277.2
						293.5	293.5
						247.6	247.6
						265.7	265.7
						262.4	—
						261.9	—
						268.3	—
						264.9	284.5
						262.0	—
						260.6	276.9
						262.4	—
						263.3	—
						264.1	282.3
						265.7	282.0

Observed Passages.

	Prec. End. h m	Middle. h m	Foll. End. h m	Observer.	Prec. End. o	Middle. o	Foll. End. o	Prec. End. o	Middle. o	Foll. End. o	Prec. End. o	Middle. o	Foll. End. o	
1879.														
Dec. 24	—	11 31.8	—	Gr. Pritchett	—	275.3	—	—	—	263.7	—	—	—	—
25	7 1	7 27	7 56	” Backhouse	262.0	277.7	295.3	250.2	266.0	283.5	—	—	—	
26	4 35.2	4 51.5	5 14.1	Ath. Schmidt	266.9	276.7	290.4	255.0	264.8	278.5	—	—	—	
26	—	13 10.3	—	Gr. Pritchett	—	275.6	—	—	—	263.6	—	—	—	—
1880.														
Jan. 4	5 15	5 42	6 11	” MacCance	261.6	277.9	295.4	248.1	264.4	282.0	—	—	—	—
12	—	12 16.3	—	” Pritchett	—	279.1	—	—	—	264.2	—	—	—	—
14	—	13 54.3	—	” ”	—	279.0	—	—	—	263.8	—	—	—	—
17	—	4 5.0	—	Mo. Bredichin	—	283.0	—	—	—	267.4	—	—	—	—
17	—	11 23.4	—	Gr. Pritchett	—	278.8	—	—	—	263.1	—	—	—	—
19	—	5 43.4	—	Mo. Bredichin	—	283.2	—	—	—	267.2	—	—	—	—
19	—	13 0.8	—	Gr. Pritchett	—	278.4	—	—	—	262.3	—	—	—	—
26	3 47.9	4 12.9	4 42.9	Br. Niesten	266.1	281.2	299.3	248.9	264.0	282.1	—	—	—	—
26	—	—	4 30	Gr. Gledhill	—	—	—	302.1	—	—	—	—	—	284.9
28	5 15.3	5 43.3	6 11	Br. Niesten	259.6	276.5	293.2	242.0	258.9	275.7	—	—	—	—
28	5 10	5 40	6 15	Gr. Gledhill	266.9	285.1	306.0	249.4	267.5	288.5	—	—	—	—
Feb. 4	5 30	—	—	” Brewin	251.4	—	—	232.7	—	—	—	—	—	—
4	6 4	6 30	6 58	Br. Niesten	261.4	277.1	294.0	242.6	258.4	275.3	—	—	—	—
5	—	12 6.3	—	Gr. Pritchett	—	281.3	—	—	—	262.3	—	—	—	—
7	—	13 43.3	—	” ”	—	280.6	—	—	—	261.4	—	—	—	—
22	6 6	—	—	Cambr. Trouvelot	271.3	—	—	249.4	—	—	—	—	—	—

The times of the observed passages contained in the list are taken from the following sources:—

T. W. BACKHOUSE, Sunderland.	<i>Monthly Notices</i> , vol. xl. p. 157.
TH. BREDICHIN, Moscow.	<i>Annales de l'Observatoire de Moscou</i> , tom. vi. 2 livraison, p. 105, 106.
T. D. BREWIN, Leicester.	<i>Monthly Notices</i> , vol. xl. p. 377.
J. GLEDHILL, Halifax.	<i>The Observatory</i> , vol. iii. p. 280 and 355.
N. GREEN, St. John's Wood.	Private communication.
G. KNOTT, Cuckfield.	<i>Astron. Register</i> , vol. xviii. p. 91.
O. LOHSE, Potsdam.	<i>Astron. Nachr.</i> No. 2282.
J. L. MAC CANCE, Putney.	Private communication.
L. NIESTEN, Brussels.	<i>Bulletins de l'Acad. Roy. de Belgique</i> , t. xlviii. no. 12.

[The observations from November 26 to February 4 have been kindly communicated by letter.]

H. PRATT, Brighton.	<i>Monthly Notices</i> , vol. xl. p. 154.
C. H. PRITCHETT, Glasgow, Miss.	From a list kindly communicated in MSS., in which the observed times are already given in Greenwich M. T.
J. SCHMIDT, Athens.	<i>Astron. Nachr.</i> No. 2309.
L. TROUVELOT, Cambridge, Mass.	<i>Observatory</i> , vol. iii. p. 417, where for G. M. T. must be read Cambr. M. T.

An examination of the longitudes in the three last columns will give at least some preliminary indications of the errors of the observations and of the deviations of the motion of the red spot from regularity. The discrepancies between the observations of different observers and on different days point to the existence of some grave sources of error and show the necessity for greater care and caution. On the other hand, the consideration of the fair agreement frequently found may give some assurance that the observations are worth making, and observers may perhaps be induced thereby to spend sufficient time and patience in watching the passages across the central meridian of all well-marked points on the planet's surface, so that at last proper observations may be available for investigating the various motions which are going on there.